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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER NUMBER
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10

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/462,024

Applicant(s)

RAHMFELD, WERNER

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 15 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 11-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on 15 August 2001 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other _____

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the first sentence is unclear as written. [note: No copy of the substitute abstract was provided in the amendment of August 15, 2001.] Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pleschiutchnigg (US 5,839,503) in view of Coassin (US 5,460,220).

Pleschiutchnigg teaches a method and apparatus for continuous casting of slabs in which the guide members include both narrow and broad sides of adjustable

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width, as well as multiple rollers of tapering conical shape (abstract; column 2, lines 24-32; column 3, lines 11-20; and Figures 1-5). An immersion nozzle feeds the molten metal into the mold, in which the mold may or may not be linearly symmetrical with respect to the center axis and the strand guidance axis (planar and parallel with respect to contour lines and interior surfaces), for either a concave or convex slab, depending on geometrical preference (column 3, lines 11-32 and 58-62; and Figures 1-5). Noncylindrical rolls that bend under load up to the last roller of the strand guide can be reached by the crater end, and these rolls are supported in bearings and serve as guides for the strand (column 3, lines 35-44; and Figure 1). The first and second pairs of adjustable side plates (for reducing slab thickness) contain cooling means (column 1, lines 58-61). The camber (taper) extends from a vertical portion (longitudinal extent) of the mold height, preferably in the upper 30% (column 1, lines 62-67; and Figures 1-3). In the adjusting region of the narrow side plates of the mold, an inclination angle is adjustable at less than 5 degrees, and a crowned surface would be produced (column 3, lines 21-26; and Figure 3). Pleschiutschnigg does not specifically disclose length parameters of planar surfaces and separate rollers of differing geometries.

However, Coassin discloses a method and mold for the continuous casting of thin slabs containing a casting nozzle, a mold, and adjustable side walls to adjust the slab cross-section (column 5, lines 61-67; column 6, lines 1-5; and Figures 1-4). Transverse rolls of various geometries may be divided into two or more segments in cooperation with intermediate bench supports (wedge-shaped connecting pieces) defining a passage equal to the outlet section of the terminal segment of the mold

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(column 6, lines 22-38; and Figures 1-4). An angle α defines the angle between inlet (A) and outlet (B), from which a central curve defining enlargement and depth to obtain length parameter L, the values of which can range from 30-90 mm for A, 1-12.5 mm for B, and greater than 500 mm for L, is obtained (column 6, lines 49-67; column 7, lines 1-18, 32-36, and 53-66; column 8, lines 6-13; and Figures 1-4). The adjustable length/surface parameters are advantageous for the purpose of avoiding excess loading of the narrow sides of the mold with combined bending and compressive stresses (column 5, lines 30-34).

It would have been obvious to one of ordinary skill at the time the applicant's invention was made to combine the elements of the continuous casting apparatus disclosed by Pleschiutchnigg with the geometrical parameters of optimum surface lengths and angles, as taught by Coassin, in order to avoid excess loading of the narrow sides of the mold with combined bending and compressive stresses (Coassin; column 5, lines 30-34).

Response to Arguments

5. The examiner acknowledges the applicant's amendment (paper #8) of August 15, 2001. The objections to the drawings have been overcome by the applicant's drawing correction (paper #9) of August 15, 2001. No copy (separate sheet) of the substitute abstract was included in the amendment (paper #8), contrary to what is stated on the bottom of page 9 of the amendment.

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6. Applicant's arguments filed August 15, 2001, have been fully considered but they are not persuasive.

With regard to the applicant's arguments on pages 12 and 13 of the amendment, the applicants state that the Pleschiutchnigg and Coassin continuous casting molds are "dished" molds rather than "funnel" molds, resulting in curved strands instead of strands with rectangular cross-sections. The examiner respectfully disagrees with the applicant's assessment of the shape of the final strand product, as the shaping means of the mold itself is the emphasis of the claimed invention. Pleschiutchnigg (Figures 2-5) and Coassin (Figure 3) both contain adjustable side plate/walls with planar surfaces. The deficiencies of the Pleschiutchnigg reference are alleviated by the Coassin reference, which gives specific details regarding the above mentioned geometric parameters.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK
kpk
October 11, 2001


M. ALEXANDRA ELVE
PRIMARY EXAMINER